

The future is now for nuclear power, say lab directors

By [Will Keener](#)

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"We see this as a start," said Tom in an interview with the Lab News. "It's the beginning of a dialog to address [public and congressional] questions and to demonstrate that we are working together as a team on this."

Sen. Pete Domenici, R-N.M., and Deputy Energy Secretary Clay Sell both praised the potential the national laboratory complex brings to nuclear energy research. "DOE and its national laboratories exist to develop technology options for our most challenging national problems," Domenici said. "US energy security is one of our most significant challenges."

"GNEP demonstrates the enormous role advanced nuclear science and technology can play in making the world a better, cleaner, safer place to live," said Sell. "The national labs are charged with realizing this vision."

GNEP (see Lab News, March 17, 2006) grew out of a larger plan by the Bush administration, recognizing that there is no single "silver bullet" to resolve US energy problems. Instead, a number of energy options — including nuclear power — need to be explored.

Bush elaborated on his plans for nuclear power in his 2006 State of the Union address, announcing the

Advanced Energy Initiative. GNEP is one element of the initiative. It calls for:

- Advanced recycling of spent nuclear fuel to extract more energy content and cut waste by-products, and
- A partnership with other nations to assure nuclear fuel supplies while reducing the threat of nuclear weapon proliferation.

The May 2 assembly of directors (only three were unable to attend and sent stand-ins) gave the leadership group opportunities to present their case to a key group of congressional staff members and the news media, and to conduct a series of other meetings.

Tom, introduced by Sen. Larry Craig, R-Idaho, moderated the congressional staff forum. Tom told the group, "Moving forward with the research and technology development proposed by GNEP is of great importance to all Americans. The partnership is a bold new initiative by the government to put the US in a leadership role with the future of nuclear power."

GNEP allows the US to address the primary issues of energy and energy supply, an improved climate and environment from energy production without harmful greenhouse gas emissions, and nonproliferation concerns about better control of nuclear materials, Tom said.

The effort will begin with preparation of a technology roadmap to determine what needs to be done, followed by a process to match the skills and capabilities of universities, industry, and the national laboratories against the roadmap. At the start of the road, Congress is already evaluating a \$250 million FY07 budget proposal for nuclear power research that would lead to technology demonstrations in FY08 in the areas of:

- Separating high-energy elements of used nuclear fuel from wastes for recycling without separating pure plutonium,
- Demonstrating proliferation-resistant fuel recycling and fabrication technologies for future reactors using chemical processing, sensors, detectors, and monitoring approaches, and
- Developing an advanced burner test reactor (about one-tenth the size of a current nuclear plant) to convert transuranic elements used in nuclear fuel into shorter-lived isotopes while releasing energy to produce electricity.

Commercial-scale production of power with this newly demonstrated "closed nuclear fuel cycle" would be the final step, a decade or more away.

Action now

The lab directors, who have worked for a couple of years to support DOE in this initiative, recognize that although GNEP is long-range and would have impact largely after a couple of decades, it should be started now. "We need to make this long-term commitment," said Tom.

In what he called "spirited" questioning from congressional staff, Tom and other directors emphasized that GNEP is consistent with plans to move forward with the Yucca Mountain repository licensing and

to work toward the addition of more light-water or advanced-generation reactors to the current inventory. "It does not in any way detract from those two things," he said.

Los Alamos National Laboratory Director Robert Kuckuck and Argonne National Laboratory Director Bob Rosner also presented with Tom at the briefing.

"The audience was very engaged, they asked a lot of questions . . . We ran out of time before they ran out of questions," said Tom. Questions focused on priorities and balance of current nuclear programs as opposed to future concepts, about the waste situation with Yucca Mountain, and about the interest of other countries in participating. (India recently became the first nation to agree to join the partnership.)

"Each of the committees or delegations there had some very informed, significant issues that they wanted to understand better. We see this as the beginning of a dialog," said Tom.

A news conference later in the day, hosted by Idaho National Laboratory Director John Grossenbacher, sounded many of the same themes. Sen. Domenici and Rep. Judy Biggert, R-Ill., opened with comments, followed by Deputy Secretary Sell and Dennis Spurgeon, DOE Assistant Secretary for Nuclear Energy.

"In the short term our role now is to maintain the discussions so that the Congress gets its questions answered sufficiently to deal with the president's proposal in the budget," Tom said.

Others participating in the day's events included directors or representatives from Oak Ridge, Savannah River, Pacific Northwest, Lawrence Livermore, and Brookhaven laboratories.